# EXCAVATIONS AT TAYLOR'S HILL, R11/96, AUCKLAND

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*Abstract.* The Taylor's Hill excavation, on a small Auckland volcanic cone pa, was the first effort in stratigraphic excavation of a North Island archaeological site. It was carried out between 1954 and 1956 while part of the site was being quarried. Two separate areas were opened up, both producing a number of artefacts and some faunal material, especially dog bone. The excavation included part of a platform and some terraces, most of which had pits dug into them. No house sites were found. Radiocarbon dates suggest an occupation period sometime between the 15th and 18th century.

Quarrying of the eastern portion of Taylor's Hill in 1954 uncovered Maori artefacts and human skeletal remains. Jack Golson, then a newly appointed Lecturer in Prehistory in the Anthropology Department, University of Auckland, was consulted about what was to be done with the finds. A series of salvage excavations took place between 1954 and 1956 in an attempt to obtain as much information as possible before quarrying destroyed the eastern ridge of the site. The excavations were carried out under Golson's supervision by anthropology students and volunteers. This was the first excavation undertaken by Golson after his arrival in New Zealand, and the first stratigraphic excavation of a North Island archaeological site.

The first excavation started on 31 July 1954, and continued until 18 September. It involved a series of squares designated E to K on the lower northern slope (Fig. 1, inset). Later work was spasmodic, as time allowed, and continued from July 1955 until June 1956 approximately. A long trench (squares N to W) was set out parallel to the earlier excavation but higher up the slope. It crossed two terraces and scarps and extended up to the flat platform just east of the crater. Quarrying of this area had begun and the excavation was carried on while it was in progress.

This report is based primarily on notes and drawings kindly made available by Professor Golson, and on the assemblage from the excavations now in the Auckland Instsitute and Museum. The skeletal remains were sent by Golson to the Otago Medical School and are not discussed here. Other sources of information include photographs of the excavation in the Anthropology Department, University of Auckland, and later plans of the site by a variety of people.

Throughout the report, artefacts are referred to by their Auckland Museum catalogue numbers. These replace the original numbers in the catalogue of finds from the excavation.

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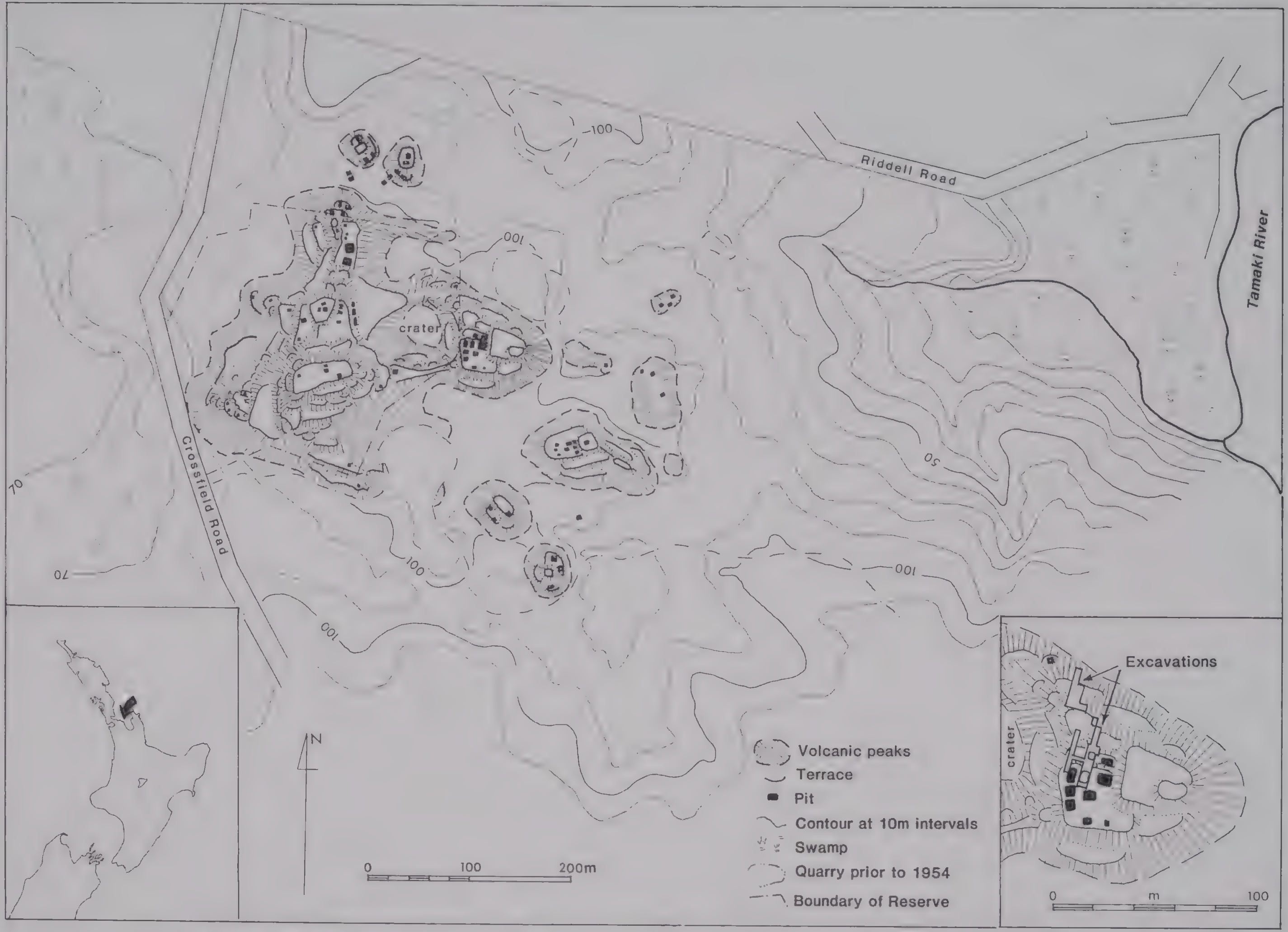


Fig. 1. Reconstructed plan of Taylor's Hill (R11/96) and environs. Inset shows excavated areas.

## *Site description*

Taylor's Hill is a low volcanic cone situated on the western side of the Tamaki River not far south of the West Tamaki Head. It is about one kilometre inland from the present shore line although it was probably closer to the water in prehistoric times.

The hill and its various scoria ridges were modified by the early Maori settlers who constructed level platforms and numerous slope terraces as living and activity areas. The numerous small hillocks (rafted scoria blocks) external to the main hill were also modified in similar ways. The site was once far more extensive than it is now. All that remains is the reserve area as shown in Fig. 1. There are numerous storage pits on the site, suggesting that the surrounding land was once used for gardens, although there is little remaining evidence of them or of the stone boundary rows once so common around many Auckand pa.

There is no surface evidence of ditch and/or bank defences. The site may never have been a defended pa, or it may have been built before the appearance in the Auckland region of ditch and bank features.

The lava flow east of the crater was almost entirely separated from the main part of the site, only being connected to it by a narrow ridge along the south-west side, representing the remnants of the old crater rim. This narrow strip would have been a suitable place for a ditch if one had been required. It was on the northern slopes of the eastern ridge promotory that the excavation was carried out, as the hillock was being quarried away.

The site plan (Fig. 1) is the result of a 'best fit' approach to a number of photographs, drawings and plans (C. Phillips pers. comm.) as follows.

1. Within the reserve: David Bulmer's composite map of the Auckland University Anthropology Department M.A. course field work excercises; subsequently field checked by Bulmer.
2. Outside the reserve: aerial photographs and a 1965 sketch map by Lawrie Birks.
3. A contour map by Kenneth Mills (pre-1954).
4. Elevations of squares from Golson's site plans which were plotted as a contour map and overlaid on the Mills contour map. The best fit approach was again applied.

## *Traditional history*

Tauoma is the name given to the eastern strip of land along the western side of the Tamaki River. Its southern boundary, Whakamahu, extended to but did not include Maungarei (Mt Wellington). Tauoma was given by Ngati Whatua to Ngati Paoa at the end of the 18th century. Prior to that the Tamaki River channel formed the eastern boundary of the Waiohua tribe in the 18th century and later, for a time, the Ngati Whatua.

The name Taurere is attributed to Taylor's Hill, although there is little firm evidence to support this. Taurere is said to be the major pa on Tauoma and was occupied by Ngati Paoa in the early 19th century (Agnes Sullivan pers. comm.).

Traditionally, Titahi, his daughter Parehuia and his grand-daughter Ruahine are said to have lived at one time at Taurere. Titahi is also associated with Maungakiekie (One Tree Hill) and Owairaka (Mt Albert) so that the site of Taurere could have had a history of long, though probably intermittent, occupation through the prehistoric sequence.

Simmons (Simmons n.d.) discusses some of the traditions of the Auckland Isthmus and mentions that Titahi is traditionally associated with having introduced the idea of terracing the volcanic cones. His daughter Parehuia married Tauranga, went to live in Taranaki and gave birth to a daughter Ruahine. Parehuia eventually returned to her old home, Taurere, and before she died asked that her body be suspended in a carved coffin in the branches of her beloved karaka trees. Her dying instruction was that her daughter would return and the sign of her coming would be a white heron at Waipuna. This is a famous stream of fresh water which was the supply for Taurere pa. The prediction was fulfilled and Ruahine returned and married. From that marriage are descended many of the leading chiefs of Tamaki-makau-rau.

The name Taylor's Hill came from the Taylor family who owned the land for many years. William Taylor, the eldest son of General Taylor, bought the land which included the terraced volcanic cone for 400 pounds in 1845. Later, in the 1920s, the Taylor's Hill area was offered as a public reserve.

### *Geology*

The volcanic cone now known as Taylor's Hill erupted some time between 20,000 and 50,000 years ago. The initial activity was mainly effusive and formed a large tuff ring and a cluster of tiny scoria cones within the ring. Later, a complex scoria cone was built up and the tuff ring was partly destroyed by the accompanying explosion. One small lava flow moved east towards the Tamaki River and rafted away part of the scoria cone. The rafted blocks formed small isolated mounds of scoria on the surface of the flow.

The main flow to the north escaped through a breach in the crater and turned east towards the Tamaki River (Searle 1981). The eruption blocked the valley stream and a swamp formed inland to the west. The old stream found a new course. Only the north-west section of the volcanic area is preserved as a reserve, the rest having been extensively quarried.

## THE LOWER EXCAVATIONS: SQUARES E-K

No plans or section drawings are available for this area. The excavation was gridded into 10 foot squares (3.048 m) and labelled east to west by numbers and north to south by letters (E-K). This same grid was used for the subsequent N-W excavation. Fig. 2 shows the northern slopes and the position of the two excavations.

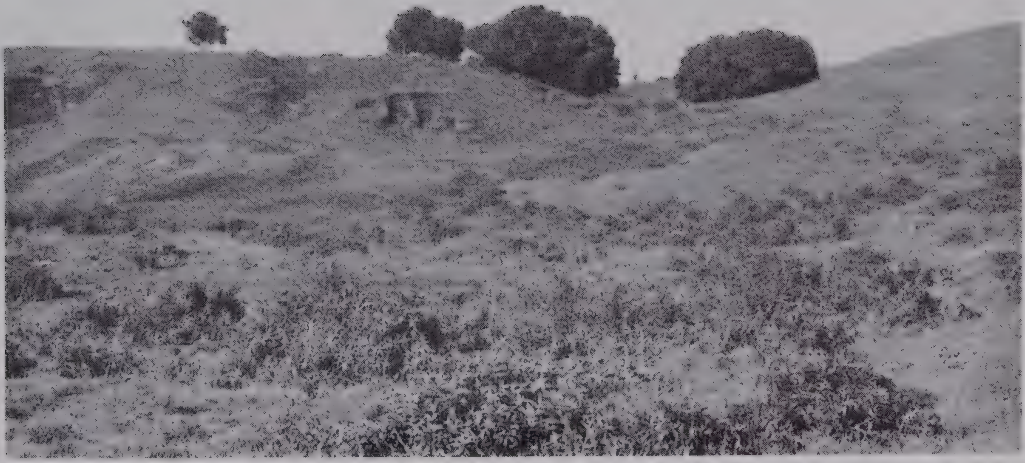


Fig. 2. Areas excavated, looking south.

Within the grid, six foot (1.82 m) squares were opened up and later some baulks were removed. The E-K excavation area ran upwards and southwards in a series of squares designated E-K 100 and extended to 101 in H-J rows of squares and to Squares 103 in the K row. Field notes mention some work in Square K 104 but there is little information on this. Some areas in the excavation were not recorded in detail and are therefore not discussed or only briefly mentioned in this report.

In this area of the excavation, the layers described were as follows:

1. top soil;
1a. thin layer of shell under top soil;
2. scoria with a few artefacts;
2a. intermediate yellowish-brown clayey earth with scoria;
2b. shell rubbish containing cultural material;
3. weathered top of clay subsoil;
4. volcanic clay subsoil.

Layers 2, 2a and 2b were the main cultural layers defined, although some material came from other lenses or layers. The deeper Layers 3 and 4 are mentioned but not discussed.

The excavation diary notes that the terrace showing in Square K 100 was dug into a former shell occupation layer indicating at least two phases of occupation, but the exact relationship was not resolved and it is mentioned that the terrace appeared to have been extended and artificially built up.

The lower squares produced little artefactual material and exposed mainly slopes and scarps and the talus that had acculumated down the slope, both from natural erosion and from activities further up. Higher up again, towards the edge of a small terrace, the occupational debris increased and layering became more evident. This led to the upper squares being extended.

### *Adzes*

The butt portion of a broken stone implement, AR7598 (Fig. 20), was found in the baulk between Squares I and J 100. It is made from Tahanga basalt and has a rather narrow-waisted hammer-dressed 'handle'. It could be the remains of a small patu or pounder, but more probably was an adze. The under part of the butt is polished over hammer-dressing and there is polishing on the upper side near the break. The broken end is damaged and crushed by pounding, as is the butt top, suggesting re-use after breakage.

Two broken adzes came from Square J 101. AR7602 (Fig. 24) is the polished bevel end of a coarse-grained greywacke adze. The bevel shoulder is somewhat rounded and the bevel edge slightly angled. There are use marks along the blade. AR7613 (Fig. 35) is the end portion of the bevel of what was possibly a hogback, Type 4a, adze (Duff 1956:Fig. 43). It is made from fine-grained greywacke and the piece has been struck from the bevel, possibly after the main body of the adze had been broken. One of the broken edges has been used to cut or saw.

AR7650c is the butt end of a sub-triangular cross-sectioned fine-grained greywacke preform. It has been formed by flaking and is partly hammer-dressed. AR7650e is the butt of an oval cross-sectioned fine-grained greywacke preform which has been heavily hammer-dressed over most of its flaked surface. The edges of the broken section show numerous small chips and bruising suggesting use as a pounder or hammerstone subsequent to breaking. Both came from Square K 100.

The greywacke material is almost entirely from the Waipapa metagreywacke group and is of local origin (Motutapu and Waiheke areas).

### *Flakes*

Two used flakes came from Square I 100. AR7651e (broken in two pieces), is of dark grey metasomatised Nelson argillite. It is from the polished blade of an adze and shows use striations. The back and edges of the flake have been polished after detachment from the adze, suggesting the maximum use of this argillite material. The second is a flake of medium-grained greywacke, AR8164, hammer-dressed on one side with edge damage and reduction along the curve.

Amongst the flakes and stone from Square J 100 is an elongated water-worn pebble of coarse-grained greywacke, AR7651b, with flaked and chipped ends, probably used as a pecking or hammer-dressing tool. There is also a small flake from a polished adze, AR8169 and a large flake of Tahanga or Mangatawhiri basalt (AR8167a).

A hand drill, AR7610 (Fig. 32), was found in Square K 102. It is pointed and triangular in cross section with a flat back and two irregularly flaked sides. One side angle shows pressure flaking along the edge. It may be slightly sand-blasted.

AR8167b from Square K 101 is a large core of greywacke with some flakes struck from it. One corner shows a rough colluvial cortex.

A small greenish chert flake (AR8169o), with a water worn surface and possible pressure wear along one edge, came from Square K 103. This chert occurs in association with the Waipapa group of metagreywackes.

A number of greywacke flakes, including a few showing some hammer-dressing, came from the E-K area. These are presumed to be debris from adze making or repair.

### *Hammerstones*

AR7622 (Fig. 44) from Square I 101, is a reddish jasper and quartz hammerstone, from the Waipapa group of rocks, possibly from Waiheke Island or the Firth of Thames coast. It is heavily crushed on one side and bruised around one edge. One side has been broken away, probably before use.

AR8166 is a small oval stone of scoria-like material, possibly water-rolled, which may have been used as a hammerstone. Two surfaces are very rough, possibly as a result of bruising. It came from Square K 103.

### *Sandstone and hoanga*

A sandstone hoanga, AR7626 (Fig. 48), came from Square I 101. This is a flat oval piece of fine-grained sandstone, probably from the Waitemata group, broken in half. One side has been used to form a smoothly concave grinding surface with numerous narrow shallow grooves in one area.

A piece of artificially shaped sandstone AR8165, came from Square J 101. The interior has been hallowed out and it appears to be a segment of a shallow broken bowl-shaped item.

One object, AR7617 (Fig. 39), described as a "fishing sinker" in the original artefact list, is a quadrangular lump of reddish iron aggregate which, when rubbed, released a fine red powder. It is about 20 mm thick and has a V-shaped groove cut centrally around it. These aggregates occur in joints of Waitemata sandstone. Kathy Prickett (pers. comm.) suggests that the groove could be preliminary to breaking it in half to form kokowai sticks.

The other item, AR7616 (Fig. 38), is a broken perforated disc. It is browny-red in colour and probably carved from very hard clay rather than hand moulded and baked. The perforation has parallel sides rather than the V-shaped ones associated with a bored hole. Rather similar objects have been found in several other sites in the Auckland area (Louise Furey pers. comm.). Its use is unknown but it could be the remains of an ornamental bead or perhaps a spindle weight (Dante Bonica pers. comm.). This last suggestion would place the piece in the post-European period. It came from Layer 2a in Square K 100.

### *Bone*

A bone tattooing chisel, AR7628 (Fig. 49), from Square H 101 is a poorly finished bone sliver tapered at the operative end, into which four very sharp teeth have been cut. There is a blue/black pigment residue and stain between the teeth. The hole in the upper part has been bored slightly to one side of the centre and a piece of bone has subsequently broken away at the upper edge.

AR7639, from baulk J/K 100, Layer 3, consisted of a small length of bone possibly smashed from a dog mandible. There is use polishing at the pointed end.

The bone point AR7637 (Fig. 53) from baulk J/K 101, consisted of a slightly curved piece of bone, possibly the remains of a needle. The point has been cut at an angle across the bone shaft and exposed the interior lamella. The other end has been cut across and then broken. At the break a V-shaped incision has been made and two grooves cut across the incision edges on one side.

A dog jaw, AR7653, with a broken ramus has had the base of the jaw cut away, probably to produce a strip of bone for use as part of a two-piece fishhook, leaving the alveolar process as waste material. It came from Square K 102.

### *Discussion*

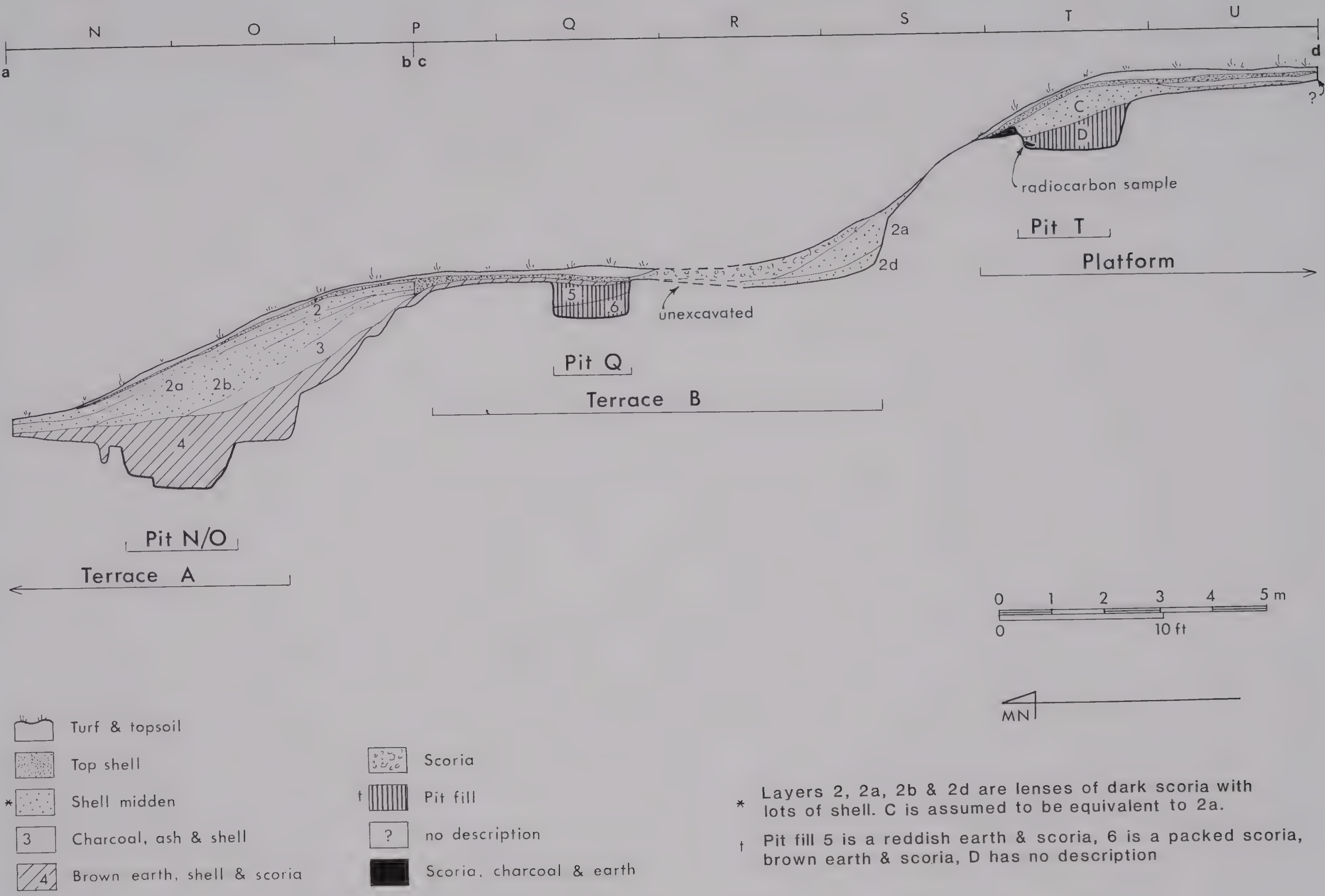
The E-K area, although well down the northern slopes of the eastern ridge, could have been used intermittently. The artefacts, except for the tattooing chisel, were all broken or suggested casual use. Most of the cultural material, including a considerable amount of broken and exploded stone, a little obsidian, shell and assorted bone, came from the Squares H-K, but much of it could have collected there by rolling down the slope.

The Layer 2 complex described in this area is not necessarily the same as the Layer 2 complex in the excavation higher up the slope, but they seem fairly similar and could represent the final occupation of the site. Indications of layers below Layer 2 in the E-K excavation were minimal. No pits were found.

## THE UPPER EXCAVATION : SQUARES N-W

This excavation commenced a few metres east of and higher up than the earlier one (Fig. 1), but was within the same grid system. Squares excavated were along the N to W lines north and south and lines 104 to 106 east to west. There was also a narrow trench extension west from Square S which turned at right angles to extend north and south, parallel to the main excavation. Other investigations were made at bulldozer cuts and where burials were exposed but there is little documentation for these.

Part of Terrace A (Figs. 3, 4) was excavated (Squares N and O) and then work continued southwards up to Terrace B (Squares P,Q, R and part of S), finally ending on the platform above the eastern crater edge (Squares T, U,V and W). The long section drawings ended at the U/V boundary, but there was probably thin stratigraphy on the platform around the pits. A number of squares and baulks not shown on the floor plan were also excavated. The main layers noted were:



* Layers 2, 2a, 2b & 2d are lenses of dark scoria with lots of shell. C is assumed to be equivalent to 2a.

† Pit fill 5 is a reddish earth & scoria, 6 is a packed scoria, brown earth & scoria, D has no description

Fig. 3. Long section, Squares N-U.

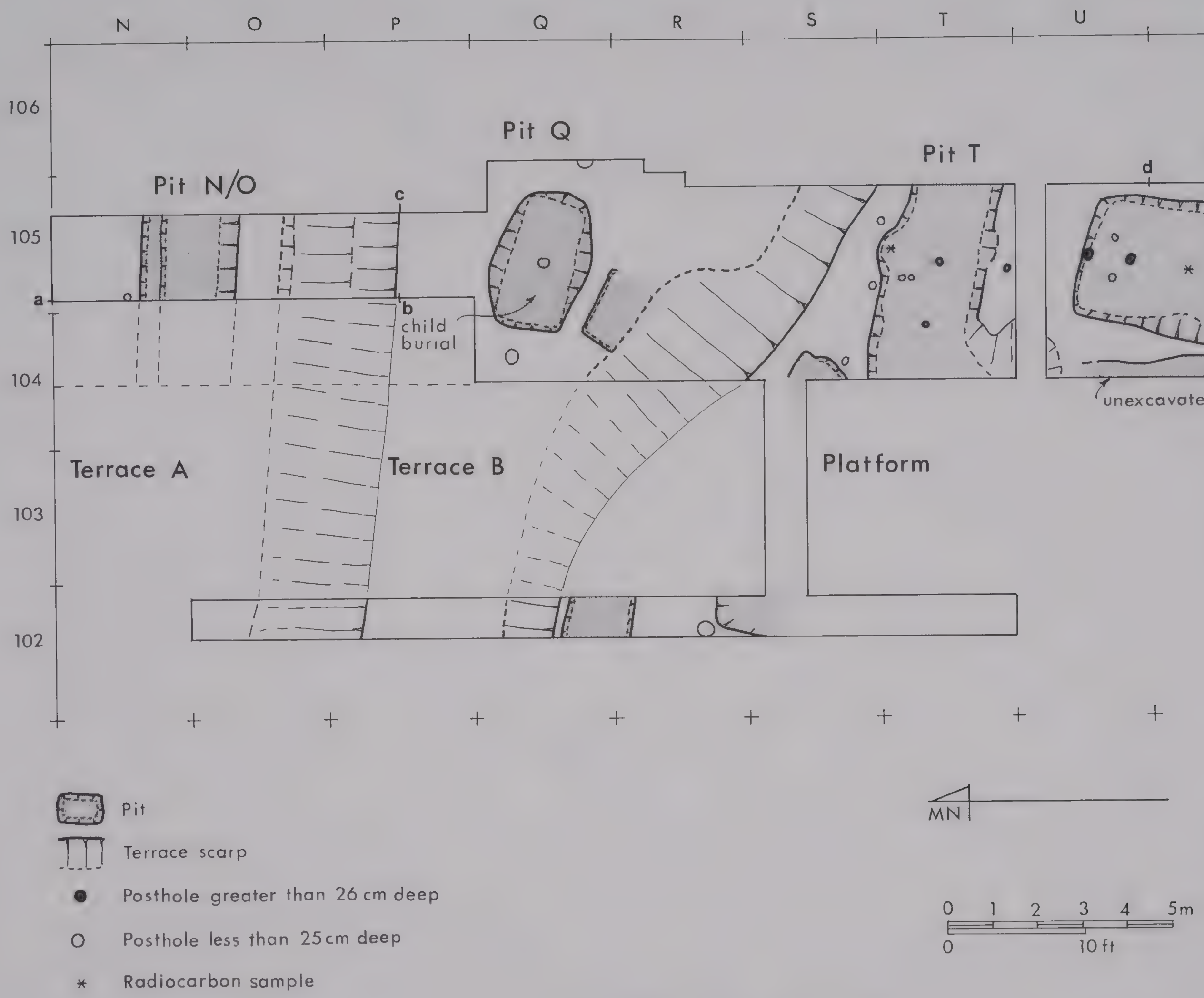


Fig. 4. Floor plan, Squares N-W.

| | |
|---|---|
| Layer 1. | top soil; |
| Layers 2, 2a and 2b. | black scoria with some earth and lots of shell, in lenses; |
| Layer 3. | charcoal, ash and shell; |
| Layer 4. | brown earth, shell and scoria (pit fills); |
| Layers 5 and 6. | pit fills (Pit T fill noted as C and D). |

### *The long section*

The long section through Squares N to U (Fig. 3) gives a general idea of the stratigraphy of this part of the excavation and is probably fairly representative of the occupation of this portion of the site. It was drawn along the eastern baulk line and reconstructed from a number of rough field drawings, some sections of which do not connect directly, for example in Square P, b - c, where there is a *ca.* 1 m shift eastwards (see Figs. 3, 4). The layer numbers and their connections were not clarified when the excavation closed so that interpretation of the long section is only tentative.

In Squares N, O and P the stratigraphy in the Fig. 3 section is fairly clear, but higher up, over Terrace B and the platform, the layering becomes confused. The fill of Pit N/O consists of the same material as that which covers the fill of Pit Q above, on Terrace B. This fill also overflows Pit N/O and covers Terrace A.

Terrace A appears to have been built with a very steep scarp and Pit N/O was dug into it soon afterwards. The pit had a ledge along its north side wall and an external posthole shows in the baulk although this is not recorded on the floor plan (see below). Later this pit was filled in, probably from a source higher up the slope as the Layer 4 material forms a thin layer over the northern edge of Terrace B, sealing over the Pit Q fill and flowing down the scarp into Pit N/O. The disappearance of Layer 4 further back on Terrace B could be accounted for by an unexcavated portion or alteration of the back scarp after the Layer 4 material has been deposited.

From the back of Terrace B the stratigraphy becomes confused and it is not clear whether Pit Q was filled in before Layer 4 was deposited over it or whether the two pits were filled in about the same time. Closer to the Terrace B scarp the Layer 2 lenses (2a and 2d) rest directly on the natural with Layer 2d the lowest. No evidence for earlier layers was present.

Above the Terrace B scarp the position of Pit T at the edge of the platform could suggest that the scarp was cut back at some time after the pit had been built. It was originally suggested in the field notes that the Pit T feature across the north end of the platform was some sort of ditch, as the ends of the pit were not established. There were some indistinct stake holes along the pit's outer edge and a charcoal and ash layer that could have been the result of the burning of a palisade but this theory was later discounted and some doubt was cast on the stake holes.

Further excavation showed that the north edge of Pit T had been cut through a thin layer of scoria, ash and charcoal, and an embrasure in the north wall of the pit also contained this material. It was from the base of this that a carbon sample was collected (NZ 7770). This ash layer is not noted in any other part of the excavation. The south side of the pit was described as a wall of natural scoria falling to a flat bottom.

The fill of Pit T consisted of two parts. The upper, fill C (described in the field notes as very similar to Layer 2a), seems to have been placed over the lower fill to cap and over-fill the depression and possibly to extend and compact the edge of the platform. These activities indicate three separate events, the depositing of the ash layer, the digging of a pit through it, and the subsequent filling in of the pit. Pit T does not show as a surface feature or depression on the aerial photograph because of the deliberate over-filling of the pit surface.

Interpretation of the cross-section is tenuous but it could be postulated that the excavated Terraces A and B and their pits were the result of early activities, but not the earliest as the top of the scarp of Terrace B cuts through the scoria, charcoal and earth layer at the edge of the platform above. Later the pits were filled in and the terraces took on a different use and a more modified outline. The scarp angles became less acute and the edges of the terraces, although keeping the same flat area, moved forward. Terrace B may have become an area set aside for obsidian flaking at a later period.

### *Floor plans*

Fig. 4 shows the Squares N-W plans. The interpretation of these is easier than that of the long stratigraphic section. Because of the drawn out and spasmodic nature of the excavation in this area, not all excavated squares are included in the floor plan, nonetheless all the principal structures are shown.

The excavation eventually opened up an approximately 4 m trench up through Squares N-P. On reaching Terrace B the trench was widened out to explore the various features as they were found.

The trench in the N-P area uncovered the central part of what was presumed to be a pit but the ends were not found. This pit (N/O) was orientated in an east-west direction and was built into Terrace A, close and parallel to the terrace scarp.

Pit N/O was about 1.2 m wide and had a ledge along its north side. Just north of and outside the pit was a posthole about 150 mm across and 220 mm in depth. A similar posthole occurred about 1.9 m to the east but is only shown on the long section.

Terrace B was exposed in Squares P, Q, R and part of S. In Square Q was a pit (Pit Q) that was fully excavated (Fig. 5). It was orientated approximately east-west along the terrace and measured 2.7 x 1.5 x 0.67 m. It had one central posthole and there were two external ones approximately 500 mm from the east and west ends respectively. The two external postholes were about 170 mm deep. The pit was filled with a reddish earth and scoria on top of an underlying brownish material. In the west part of the pit fill a baby's skeleton in a crouched position was found. The grave had been cut through a scoria layer and then into a pumice and sandy layer. This material may have been an intrusion added at the time of burial.

Evidence for another pit running parallel to but south of Pit Q is shown on the plan but little mention is made of it in the field notes. Its southern edge appears to go under the scarp and may have been covered by talus spilling down the slope.

Fig. 5. Photograph of Pit Q.

For cultural reasons, these images have been removed.
Please contact Auckland Museum for more information.

Fig. 6. Photograph of Pit V.

Square S was situated on the scarp rising up to the main platform. Almost at the outer edge of the top of the scarp was a pit or trench (Pit T). This also was oriented east-west. It was exposed to the full width of the excavation but no ends were uncovered. At the western end of the southern edge of the pit the wall appeared to curve round. Field notes suggest that the scoria was cut away by some sort of pit which was filled, at least partly, by shell — virtually all cockle with a few pipi and scallop together with fish bone. The northern wall of Pit T was cut into the remains of an earlier layer. A number of postholes in and around Pit T are shown on the plans but there is little information recorded about them. The two postholes in the centre of Pit T were both over 300 mm deep. The stake holes outside and to the north of Pit T were considered to be tenuous and indistinct.

Pit V which was excavated in Squares U, V and W (Fig. 6), was visible on the surface — one of a number of large pits on the platform. It measured 1.82 x 5.84 x 1.21 m approximately. There were four postholes along the long axis of the pit. There were several other holes in the floor suggesting re-use of the pit by shoring up of decaying or weakened roof supports over time. A shell sample NZ 7753 (see below) was taken from the base of the pit fill in Square V 105.

Several other features such as pits and postholes were uncovered but not fully investigated. The floor plan also includes a narrow trench extension with evidence for more pits and post-holes in the north-western side of the platform but little further information about them has survived.

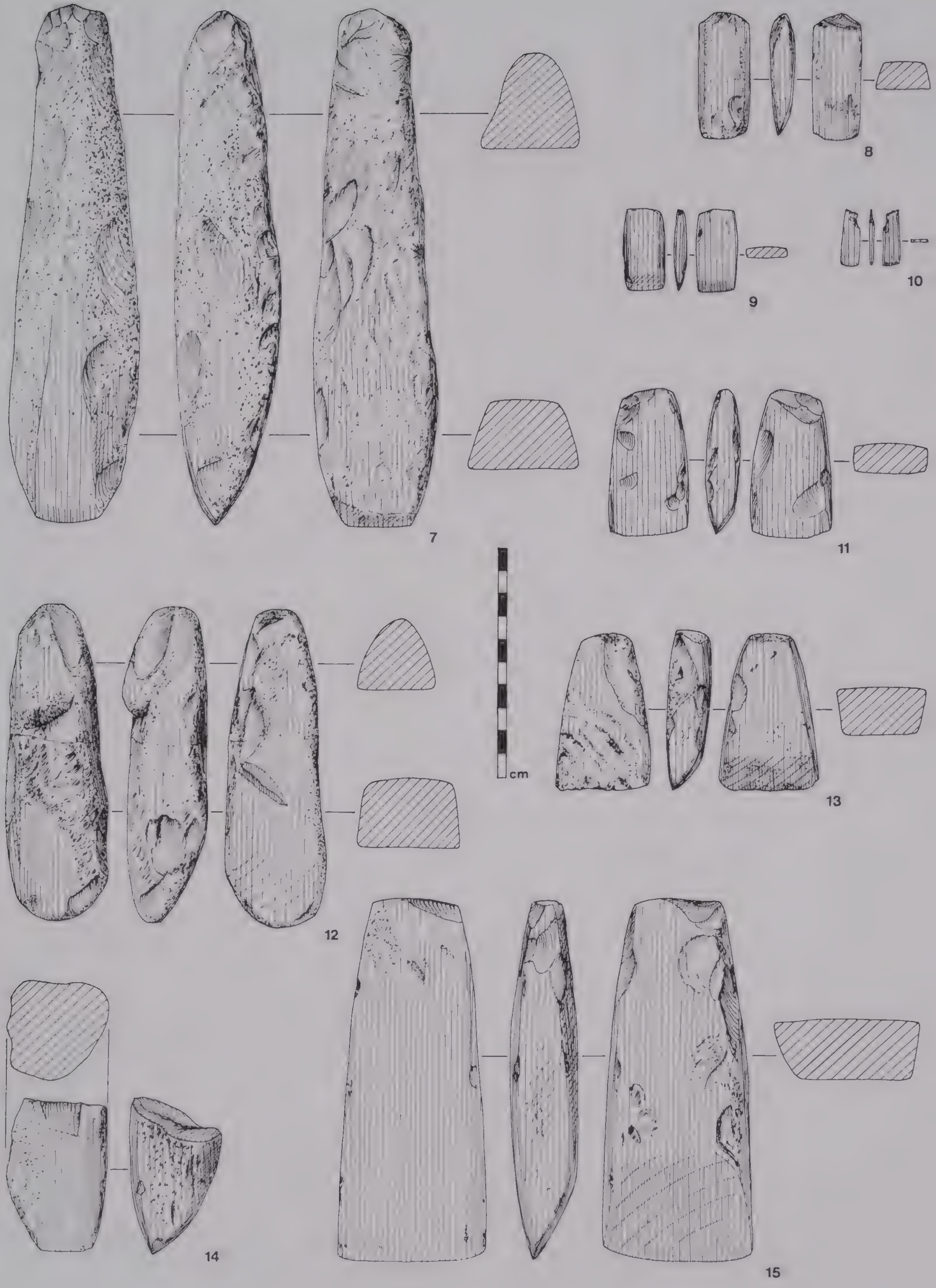
### *Trenches A and C*

These two trenches are represented by the western extension to Square S and the narrow trench in S102 shown in Fig. 4 (J. Golson pers. comm.). A few artefacts and some bone material came from them.

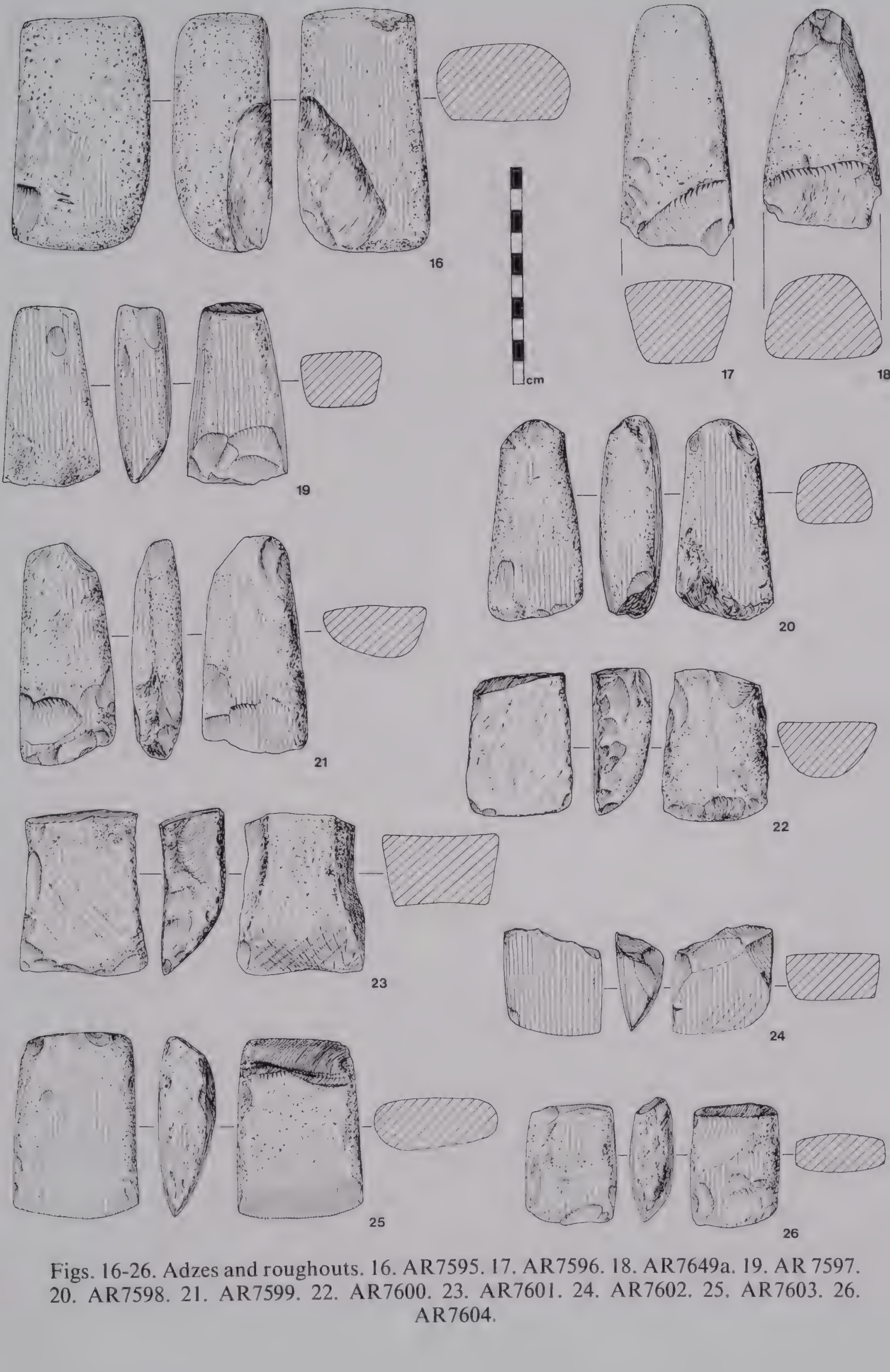
### *Adzes*

Adze AR7605 (Fig. 27) is a stubby, heavy adze with a quadrangular cross-section, polished front and back in the bevel half and hammer-dressed with over-polishing along the butt and sides. The bevel shoulder is rounded and the bevel edge straight and in good condition except where an edge has been ground back to a slight angle. It is made from fine-grained greywacke and has use striations on the blade. It came from Square N 104, Layer 4 pit fill.

The small Type 2B (Duff 1956:166) adze AR7606 (Fig. 28), also reputed to come from the pit edge in Square N 104, is almost entirely polished, with small patches of hammer-dressing. The bevel shoulder is rounded and the bevel edge straight and in good condition. It has been made from fine-grained greywacke and has use striations on the blade. There is an oblong stain and raised deposit along the back of the adze suggesting that it may have been glued to something, possibly for demonstration purposes, suggesting that its original catalogue provenance is more suspect than that of AR7605. It is also the last entry in the list, so it could have been added later. Thus AR7606 may not have come from Square N 104 despite present available information.



Figs. 7-15. Taylor's Hill adzes. 7. AR7586. 8. AR7587. 9. AR7588. 10. AR7589. 11. AR7590. 12. AR7592. 13. AR7591. 14. AR7593. 15. AR7594.



Figs. 16-26. Adzes and roughouts. 16. AR7595. 17. AR7596. 18. AR7649a. 19. AR 7597. 20. AR7598. 21. AR7599. 22. AR7600. 23. AR7601. 24. AR7602. 25. AR7603. 26. AR7604.

AR7607 (Fig. 30) is a thick stubby adze with a quandrangular cross-section, made from fine-grained greywacke. It is polished at the blade end and hammer-dressed over the butt and sides. The bevel shoulder is rounded, the edge straight with a small chip off one corner. The edge has tiny use flakes along it. It came from Square P 105.

A small greenstone chisel, AR7589 (Fig. 10), from Square O 105 has been made from a greenstone flake polished all over with the upper end and side chipped. There is a shallow scarf cut across the uneven top. The bevel edge is straight and bifacially sharpened.

A broken adze AR7591 (Fig. 13) from Square P 105 is a clumsy looking artefact but well used. It is made from a lump of coarse-grained basalt, possibly Tahanga, and has been broken in two parts. It is from a rough, probably naturally shaped piece, slightly flaked, hammer-dressed and irregularly polished on the front. The back has been almost entirely polished. It is close to square in cross-section, and has a natural bump in the front of the butt left to form a hafting device. There is hafting wear polish on the butt. The bevel shoulder is rounded and the blade end has been crushed down to form a curved flat (over 5 mm) blade edge. It suggests re-use of an earlier adze for pounding or hammer-dressing. It was probably abandoned after breaking.

AR7604 (Fig. 26) from Square P 105 is the damaged blade end of a smallish Type 2b adze. It has been flaked, hammer-dressed and the blade is almost bifacially polished. Several flakes have been removed from the blade, possibly as the result of explosion flakes from being in a fire. There is a patch of orange-brown cortex on one surface. AR7649e, also from P 105, is a flaked blade end of a preform with some hammer-dressing. It is subtriangular in cross-section with the front wider than the back. The bevel edge is only roughly flaked. The back shows a natural cortex that has been hammer-dressed and there is slight polishing over the front.

Chisel/adze AR7587 (Fig. 8) from Square Q 104, is partly hammer-dressed and partly polished. The bevel is curved and the slightly angled bevel edge has a number of small nicks along the front suggesting heavy use. AR7649a (Fig. 18) is the butt end of a preform. It has been formed by flaking and hammer-dressing. On one side near the break is a concave hammer-dressed saddle which could suggest modification of the butt for lashing or it might be the result of a natural depression in the stone. Other parts of the preform have been heavily hammer-dressed. AR7650d, also from Square Q 104, appears to have been an adze blank in preparation but broken in half during preliminary flaking. It has one water-rolled surface and may have been in a fire.

The second of the two small greenstone chisels, AR7588 (Fig. 9), came from Square Q 105. It is polished all over with an angled back shoulder and a curved and ground front bevel.

AR7603 (Fig. 25) is the short blade end of an adze which appears to have been re-used after breaking. The front has been hammer-dressed again to include the broken edge and then polished, especially at the bevel end. The back has been polished over the hammer-dressing and the bevel re-ground. The bevel edge is slightly curved and in good condition. It came from Square R 104.

AR7608 (Fig. 29) is a small adze made almost entirely by flaking, with the front and back polished. Numerous deep flake scars remain unpolished and the sides are only lightly polished. The bevel edge is straight and appears unused. The back bevel is curved. The adze looks new. It came from Square T 104.

The small adze AR7590 (Fig. 11) from baulk T/U 104 has been formed by flaking and then polished all over. The bevel shoulder is angled and the bevel edge is slightly curved and shows slight use chipping. It appears to have been burnt as there are a number of explosion flakes over its surface.

Broken adze AR7596 (Fig. 17), from baulk U/V 105 has had two large flakes bifacially struck from the broken end. One flake is larger and deeper than the other, suggesting that the butt was being reworked to form a blade for a smaller adze.

### *Flakes*

A used flake, AR7612 (Fig. 34), from Square N 104, is of fine-grained greywacke with heavy bifacial edge damage and a small area of hammer-dressing. One surface shows a natural water-worn edge and a bulb of percussion slightly polished, suggesting either use wear or possibly exposure to weathering or sand blasting.

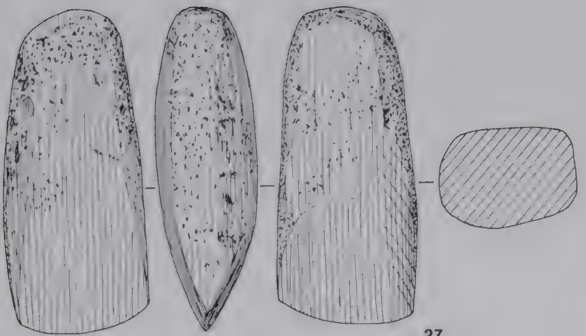
An unusually shaped flake of a piece of exploded fine-grained greywacke came from baulk N 104/105. It is a piece from a large curved water-worn pebble surface. This surface has slight use wear polish on it. The long sharp edge has been used to cut or saw and has use polish along it. The inside irregular ridge is also slightly polished. This may have been deliberately done to smooth a sharp edge that projected against the hand while the flake was being used.

Flake AR8178 is made from medium-grained greywacke with two water-worn surfaces. The sharp edge of the flake has been used as a grooving tool. AR8176 is a triangular fine-grained greywacke flake with one double concave edge modified by flaking or edge damage and the other used as a saw. AR8174 is a flake struck from the corner of a water worn medium-grained greywacke pebble. Two edges have been used for sawing. All were from Square N 105.

AR8186 from Square O 104 is a used flake made from metasomatised argillite from the Nelson ultramafic zone (probably the Ohana source, D'Urville Island). The flake has a battered edge and also possible unifacial edge damage from use.

AR7614 (Fig. 36) is a triangular piece of fine-grained greywacke. It has one bifacially chipped edge and one slightly polished end surface probably caused by use friction during a sawing process. AR8182 is a greywacke flake with one water worn surface, two ground edges and slight grinding on the inner flake surface. It has been used for grooving. Both came from Square O 105.

From Square P 105 came several flakes. The piece of chert AR7651c has been flaked across the base and further small flakes have been knocked off all four sides to form sharp irregular edges. It is not clear whether most of the edges have been slightly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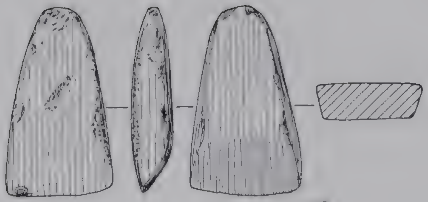
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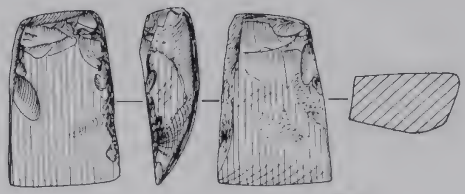
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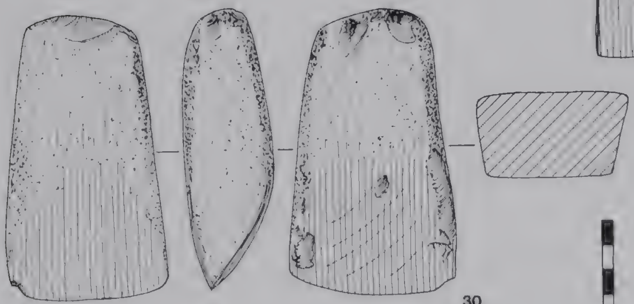
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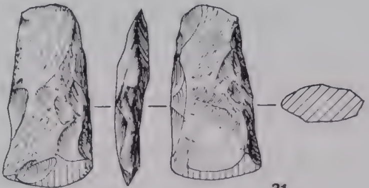
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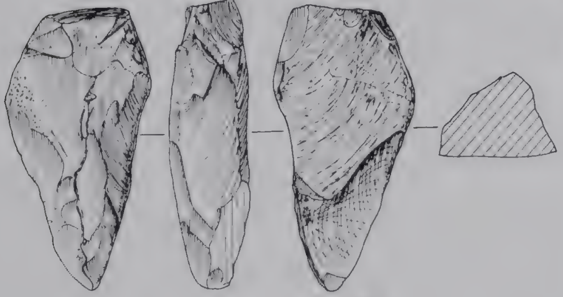
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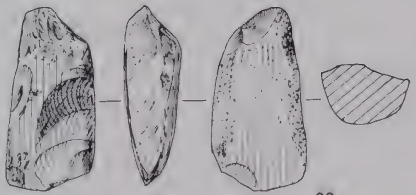
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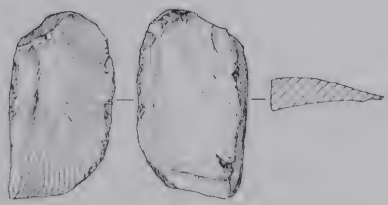
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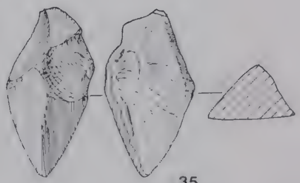
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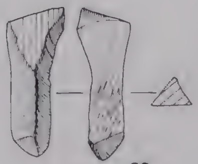
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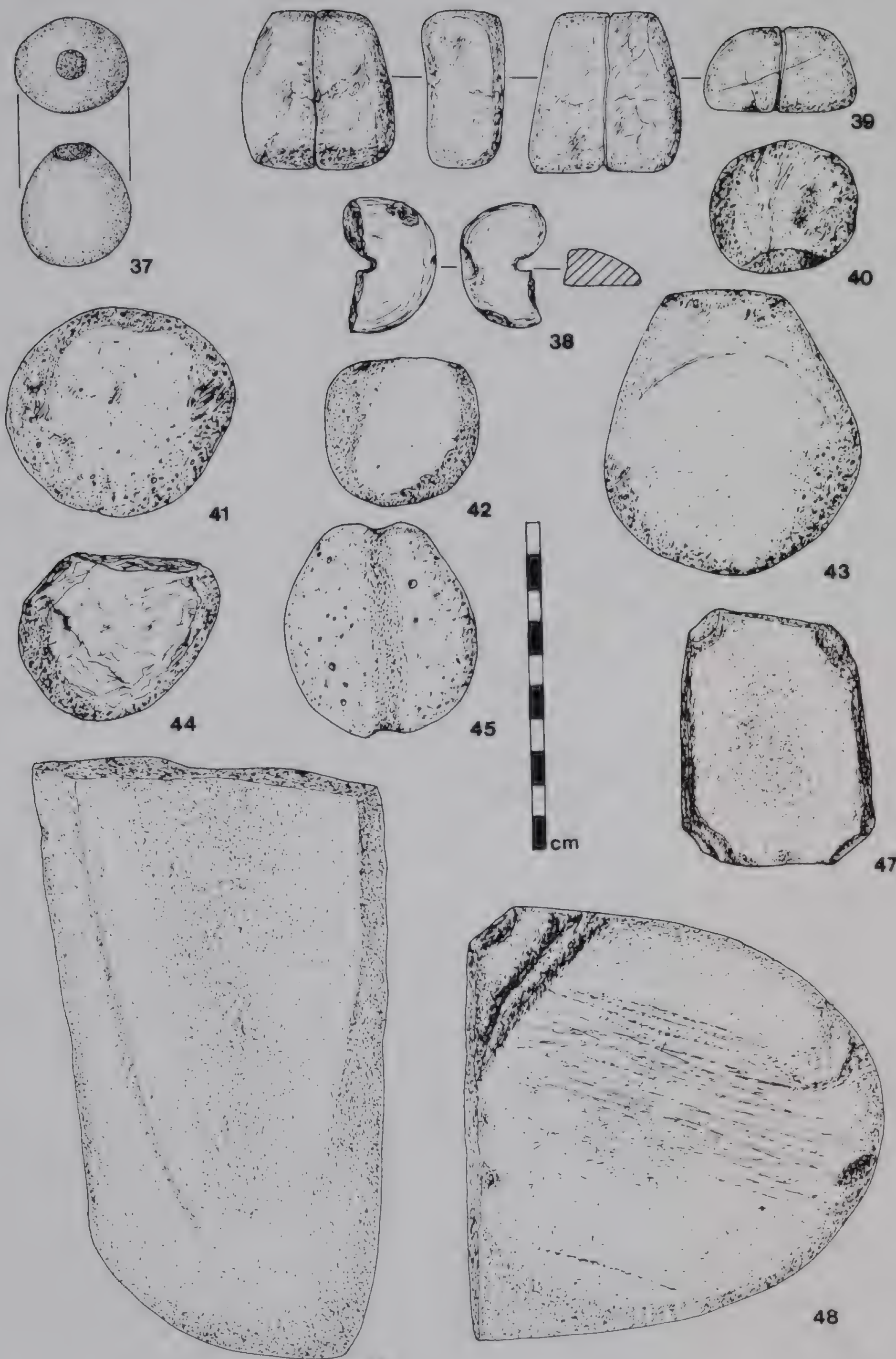
Figs. 27-36. Adzes and miscellaneous stone artefacts. 27. AR7605. 28. AR7606. 29. AR7608. 30. AR7607. 31. AR7609. 32. AR7610. 33. AR7611. 34. AR7612. 35. AR7613. 36. AR7614.



Figs. 37-48. Hammerstones, hoanga and miscellaneous artefacts. 37. AR7615. 38. AR7616. 39. AR7617. 40. AR7619. 41. AR7618. 42. AR7620. 43. AR7621. 44. AR7622. 45. AR7623. 46. AR7624. 47. AR7625. 48. AR7626.

crushed during flaking or subsequently during use. One end, where a bifacially flaked edge has been formed, has been more heavily crushed by use than the others.

AR8193 is a flake from an adze of Tahanga basalt. It has one polished side and one side hammer-dressed. There is also a piece of obsidian. Part of a polished adze blade, also possibly of Tahanga basalt, AR8196 from Square S 104, has been broken from the bevel edge of an adze. It shows small use chips along the working edge.

A greywacke adze flake, AR8197a, has one polished and one hammer-dressed side. Another, AR8197b, is a small flake showing one polished face. It is possible that they came from the fill of Pit T in the T 104-105 baulk.

AR8200 is a lump of igneous material, possibly from Coromandel. It has been chipped along one side and an attempt made to flake one edge leaving it concave and irregular. It came from baulk U/V 105. Another thin flake of this material was found in Square O 105. Of the obsidian flakes found in this square one piece AR8221b showed secondary flaking along one edge.

### *Hammerstones*

The small hammerstone from Square O 104, AR7620 (Fig. 42) is made from a water-rolled Coromandel chert pebble. It has a natural surface top and bottom and one side where there is an indentation. The other three sides are heavily crushed.

A large pear-shaped hammerstone, AR7621 (Fig. 43), came from Square O 105. It is from a water-worn pebble of coarse-grained greywacke. It is flaked and heavily bruised at the narrow end and crushed around the base. It has an off-white patina over one surface, as do several other stone items, which may be a marine encrustation (Bruce Hayward pers. comm.) although a similar patina was observed by the author on stone material from Whakamoenga Cave, Taupo (Leahy 1976) to which this would not apply.

The other hammerstone from Square O 105, AR7619 (Fig. 40) is small and of pale grey chert with green bands and a little quartz. It is bruised all over except for one slightly concave surface. It probably originated from the Waipapa group of rocks but could be from Coromandel.

A broken green chert hammerstone from Square P 105, AR7651a, has been heavily bruised around the sides and the broken ends also show bruising, probably to prevent the sharp edges from cutting the hand. It comes from a source within the Waipapa group of greywackes.

### *Sandstone*

A small rectangular piece of fine-grained Waitemata sandstone AR7625, (Fig. 47) came from Square N 104. It fits neatly into the palm of the hand and it is well used on one surface. Two pieces of used sandstone came from Square N 105. One, AR8174, is an oblong piece of local origin with the end of one surface slightly concave from use.

AR8175 is a small reddish piece of local sandstone with one narrow edge grooved as if used to smooth a shaft or thin object.

AR8221a from Square P 105 is a short broken, triangular cross-sectioned piece of sandstone, once part of a longer file. There is an oval but broken piece of sandstone, AR8194 from baulk P/Q 105 which has been artificially flattened around the edges, but with the upper and lower surfaces still in their natural state. There is no obvious signs of use wear.

### *Pumice*

A small piece of pumice, AR8199, with signs of abrasion use came from Square T 105.

### *Bone and shell*

AR7640 (Fig. 62) from Square N 104 is a dog mandible, the front part of which has been broken off after the lateral (lower) border has been cut away. The broken edge of the ramus has been notched to a cockscomb form and below this two stepped notches were cut in the bone behind the back teeth. The other mandible from this square, AR7654a, is a broken posterior end with the lateral border smashed off.

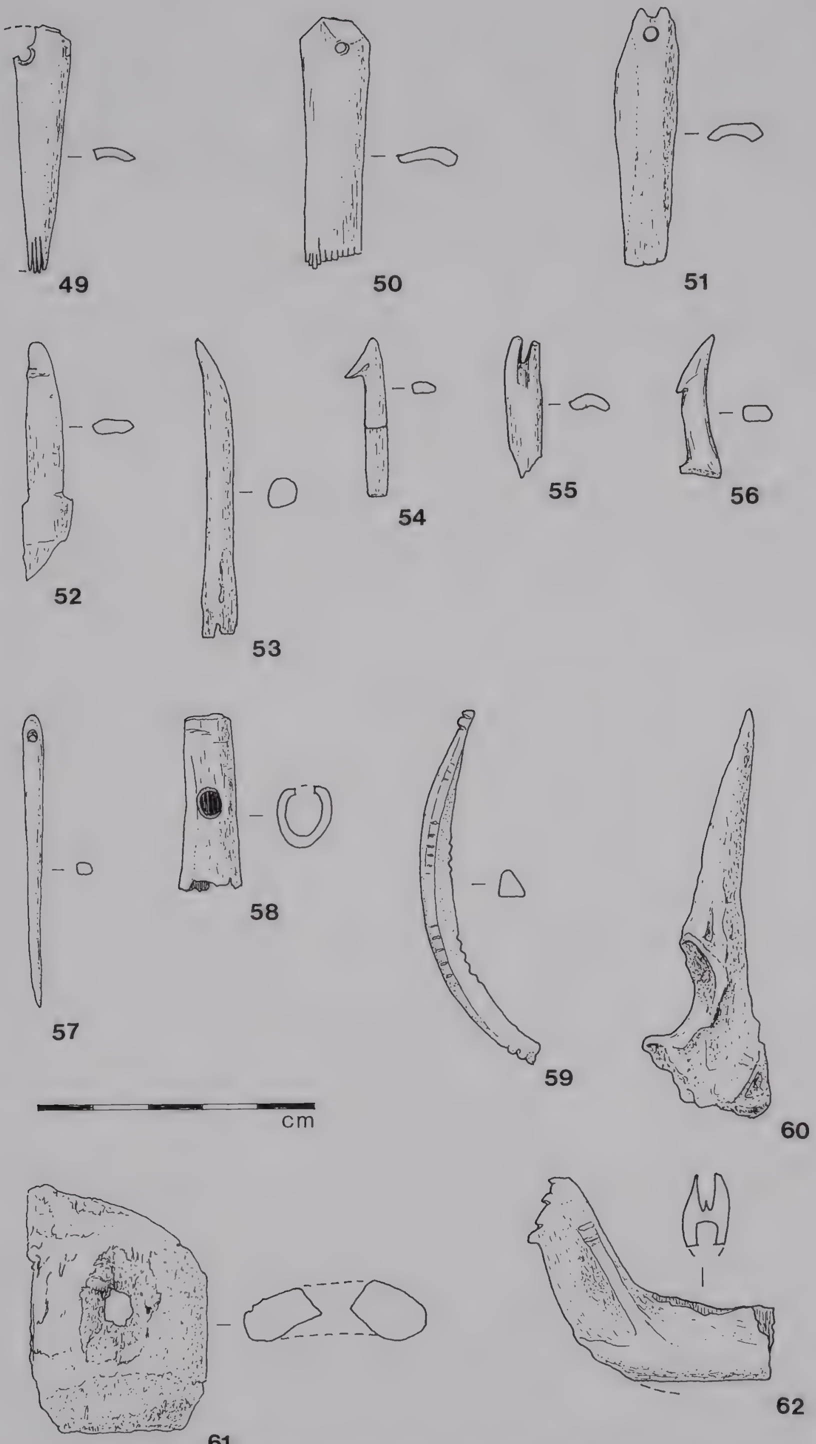
The dog mandible, AR7653e from Square N105, consists of the jaw angle, with the lower part of the ramus and the anterior jaw broken away. The lateral border has been removed. There are two or three cuts across the edge of the ramus behind the back teeth, AR7654b is the fragile remains of an alveolar process with the lateral border cut away. It is the jaw of a young dog or puppy.

A short piece of worked bone from Square O 104, AR7635 (Fig. 55) is notched at one end with two cutting grooves showing below the notch. The rounded blunt point has been broken off.

The bone toggle AR7632a (Fig. 58) came from Square O 105. It was roughly made by cutting around both ends of a piece of dog femur and then breaking it, but with no further finishing. Part of the wider end has been broken downwards with the toggle hole being on the opposite side to the indented part. It is functional but not well finished.

Also present in Square O 105 was AR7653d, a dog right mandible with the front of the alveolar process broken away and the ramus broken across. The ventral border has been cut away. Dog jaw AR7654d is also a right mandible but it consists of only the ventral border with the rest of the jaw broken away. The bone shows no sign of working. AR8220 is a small piece of flat worked bone now broken into several pieces.

AR7627 (Fig. 50) from Square P 105 is a bone tattooing chisel with the teeth broken away at the base. The body of the chisel is complete with a central hole but the upper portion is broken into four pieces. AR7632 (Fig. 56) is a small curved flat piece of bone with a barbed point at one end and a shoulder cut in one edge at the other — the point of a two-piece fishhook. AR7653b is a flat strip of worked bone polished all over and broken at both ends, from Square Q 105.



Figs. 49-62. Bone and shell artefacts. 49. AR7628. 50. AR7627. 51. AR7629. 52. AR7634. 53. AR7637. 54. AR7633b. 55. AR7635. 56. AR7632. 57. AR7636. 58. AR7632a. 59. AR7630. 60. AR7638. 61. AR7631. 62. AR7640.

Bone from Square R 105 consisted of a bone needle, AR7636 (Fig. 57). It is in good condition with the eyelet hole bored from both sides. The fragile barbed point AR7633b (Fig. 54) has a low shoulder about half way down the flat side of the shaft reducing the thickness of the bone to form a lashing shoulder. The opposite side has a series of fine cuts probably to roughen the polished bone and act as a lashing grip. The barb protrudes almost at right angles to the shaft and its upper side merges into the point. The artefact is a delicate piece and could not have been used for anything requiring a great deal of pressure.

AR7634 (Fig. 52) is a flat sliver of bone, polished on both sides at one end, but with the bone lacunae showing at the other end where it has been snapped across. It has a rounded point with two incised cuts across both surfaces just below the point. Towards the broken end the bone has been notched on both edges form a shoulder. Its use is unknown.

AR7630 (Fig. 59) is made from the rim of a paua (*Haliotis iris*) shell. It is curved and triangular in cross-section and is decorated with a series of notches in groups on the main body. One edge angle has two groups of six notches with a group of three near the proximal end. Another angle has two groups of five with three near the line attachment and the third angle has two groups of four notches with additional ones near both ends. The proximal end has a knob with two notches at its tip, and the distal end has a side shouldered, flattened hook attachment also notched for lashing. It came from Square R 105 Layer 2d. Similar lure shanks, but without notching, are illustrated by Crosby (1966:144) who described them as "Keri (sic) Island" late series shank types. They take their name from a shank found in a site opposite Kiri Island, Hauraki Plains, by Dr A.W. Avery of Thames. The cache included points which go with the shank. The form is characterised by a natural triangular section made from the columella of a paua. The line lashings are symetrical. Surface collections from a number of places including the far north and Slipper Island off the Coromandel east coast have included similar shanks (Janet Davidson pers. comm.), others have come from the Mokau Valley, Taranaki (Roger Fyfe pers. comm.).

A bone tattooing chisel, AR7629 (Fig. 51) is from the shaft of a bone with a central hole bored from one side in the upper portion. The lower part has been ground flat to form a chisel edge. The bone at the top, just above the hole has been broken away. It came from the long trench, Square T 102.

A worked strip of bone, AR7653a, from baulk V 104/105, has been cut along the sides and then snapped. One end has been cut at an angle and broken and the other end just broken. One surface has been smoothed but the under side is in its natural state. The thin end of the bone has been longitudinally grooved but the shallow groove only runs half way along the bone surface.

AR7638 (Fig. 60) is an awl made from a dog left ulna. The upper joint of the bone has not been modified but the shaft has been broken in half down the bone and the end cut or ground to a point. It came from Square V 105. An unusual item from the same square, is an oval piece of very porous bone, AR7631 (Fig. 61) possibly of sea mammal bone, suggesting a fishhook tab. It has a knob protruding slightly from the oval outline forming an incipient snooding end. The whole piece has been cut out of the bone and has an angular look. The central hole has also been cut through from both sides rather than drilled.

## UNPROVENANCED ARTEFACTS AND SURFACE FINDS

A number of artefacts were gathered from outside the actual excavation during quarrying. They were mainly stone adzes, blanks and preforms and hoanga. The collection is probably very selective and articles made from other material such as bone or shell may have been overlooked.

A small collection of bone artefacts from the estate of Lawrie Birks is now in the Auckland Museum. Birks worked at the Taylor's Hill excavation and the artefacts were probably gathered during the quarrying operations. There are no notes associated with them. The Birks material is dealt with separately below.

### *Adzes*

Adze AR7586 (Fig. 7) is a long narrow adze, sub-triangular in cross-section, with the back wider than the front. Although of archaic appearance, similar to Duff's (1956:180-182) Type 4B, it has a tapered rather than a modified butt. The back is slightly convex. The adze has been made by flaking and hammer-dressing followed by some polishing. It has been polished on the front and roughly polished on the bevel end of the back, and appears to have been heavily used before being abandoned as the blade has deep striations up its surface. It has been made from local greywacke. The adze appears to be slightly sand blasted.

AR7594 (Fig. 15) is a complete Duff Type 2B adze of grey-green greywacke. It is polished all over except where a few flake scars are too deep. There is no appreciable hafting polish. The bevel edge is fairly straight and there are a number of tiny edge chips across it indicating use wear. The bevel shoulder is slightly rounded.

An unusual complete small adze, AR7592 (Fig. 12) has been made from a hollow-veined sedimentary, cherty material, badly degraded and corroded. It is of a stubby Type 2B form and has been shaped by grinding all over except where the butt end and side have crumbled away. The bevel edge is rather irregular and fragile as the fissures in the stone have prevented a properly formed edge.

AR7611 (Fig. 33) is a small fine-grained greywacke adze made from a pebble by flaking and hammer-dressing. The adze has been partly polished and the bevel angle is curved. The front has had a couple of large flakes broken off from the blade end upwards and sideways. Some attempt has been made to regrind the broken area but this was not continued. There are patches of pink marine encrustation over one surface.

AR7609 (Fig. 31) is of medium-grained greywacke. It has been made from a flake and then worked to form a rough adze shape. The blade edge is bifacially polished and flattened suggesting that it has been used as a grooving tool rather than an adze.

AR7597 (Fig. 19) is the butt end of a Type 2B fine-grained greywacke adze, hammer-dressed and then polished. The broken end has been reflaked with the front subsequently hammer-dressed and the back roughly flaked.

AR7599 (Fig. 21) is an adze of coarse crystalline greywacke with a broken bevel. It is probably made from a pebble and the stone is fairly intractable. It has been roughly flaked and slightly polished. The blade end has been reformed by flaking, with bevel polish uncompleted. It may have been a larger but broken adze, subsequently reworked.

AR7601 (Fig. 23) is the blade end of an adze preform of fine-grained greywacke. It is quadrangular in cross-section and has been carefully flaked. The back has been hammer-dressed along its surface and on to the bevel shoulder, and the other sides have been partly hammer-dressed. It was probably broken during the process of hammer-dressing. The bevel end is slightly wider than the body giving the end a flared look.

AR7593 (Fig. 14) is the broken bevel end of what appears to have been a sub-triangular cross-sectioned adze. It is made from grey-green greywacke. An attempt has been made to rework the blade along one side and the bevel end by the removal of a number of flakes. The side of the polished front nearest the flaking has been heavily hammer-dressed to the edge of the secondary flaking over the old polishing. It is probable that the reworking and hammer-dressing broke the adze.

AR7595 (Fig. 16) is a bun-shaped block of basalt, flattened and polished on one side and heavily bruised along the sides and top. Both ends are flat but the wider end has been hammer-dressed and a large flake has been struck from the flat underside rendering the stone useless for further development. It may then have been re-used for hammer-dressing.

The blade end of an adze AR7600 (Fig. 22) is made from grey-green fine-grained greywacke. It is bun-shaped in cross section with a flat unworked front except for a small polished facet, and is flaked and hammer-dressed with slight polishing on the back. The bevel shoulder has been formed by removing a number of flakes from the bevel edge. It may have been reworked.

AR7649d is a possible blade end of an adze blank formed by flaking and heavy hammer-dressing. The front has been flaked and the back heavily hammer-dressed. The rough blade edge has been crushed as if used for pounding or bruising.

AR7650a is the blade end of a flaked fine-grained greywacke blank. It was formed by the removal of numerous small flakes leaving the stone irregularly shaped. The bevel has been formed by flaking and there is light hammer-dressing in a few places.

AR7649b is an intractable piece of fine-grained greywacke worked stone with an oval cross-section. It has been formed mainly by flaking and the sides have been hammer-dressed. It probably broke during preparation.

AR7650b is the butt end of a fine-grained greywacke preform with slightly 'waisted' sides. The flaked outline has been hammer-dressed over three sides and to a limited extent on the fourth. One edge of the broken portion has been deliberately bifacially flaked and re-used.

AR7649c is one end of a flaked blank of medium-grained greywacke, bun-shaped in cross-section. It has a flat flaked base heavily hammer-dressed along one side and the 'crest' or upper surface has been slightly bruised. The broken end is slightly angled and the protruding lower edge has been used for cutting or sawing. At the end opposite the break several flakes have been removed back and upwards from the flat base leaving a curved edge around the end.

### *Fishing sinker, hammerstone, etc.*

Stone fishing sinker AR7623 (Fig. 45) is an oval andesite stone from Waiheke with a pecked groove around its circumference.

AR7618 (Fig. 41) is a basalt hammerstone probably of local origin. It is flat on one side, possibly as a result of grinding, concave on the other and flattened around the circumference. The granular nature of the stone prevents the edge bruising from showing obviously but it may have been well used.

AR8201 is a large flake of coarse-grained greywacke. The edges are irregular but it does not appear to have been used. It is probably an adze reduction flake.

### *Hoanga*

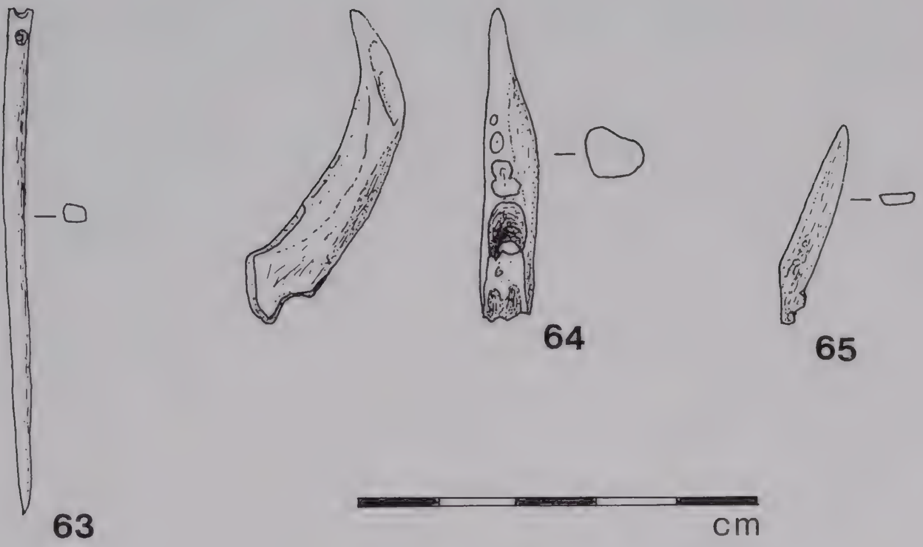
AR7624 (Fig. 46) and AR7651d represent two parts of a long, prepared flat piece of fine-grained local sandstone which, when joined, make an elongated and concave grinding surface. AR7624 appears to have had further use after breaking while the other piece was discarded.

AR7652 is a large triangular shaped piece of coarse-grained sandstone with one surface slightly concave from use and some grooving marks at one end. The sandstone is not from the immediate neighbourhood. It is possibly from south Auckland or the Kaipara area.

AR7615 (Fig. 37) is a smooth oval greywacke stone about the size and shape of a bantam's egg with one end artificially flattened. The flat surface is darker than the rest of the stone and gives the appearance of having been stained with an oily substance. It is stated as coming from Trench A but there is no other information on it. It may be a polishing stone with the flat surface being used for fine tool dressing.

### *The Birks collection*

AR7633.1 (Fig. 64) is the point of a two-piece fishhook cut from the mandible and a part ramus of a puppy or young dog. The two small back molars have been filed level and a more forward molar removed leaving an empty socket. Behind this socket the bone has been cut and fashioned to form two lashing grooves so that the socket and the grooves form an attachment arangement for the shank. The cut and shaped ramus has been ground into the point of the hook.



Figs. 63-65. Birks collection. 63. AR7633.2. 64. AR7633.1. 65. AR7633.3.

AR7533.2 (Fig. 63) is a thin well-polished bone needle. The original eye has been broken and a fine lower eye, bored from both sides, has replaced it.

AR7533.3 (Fig. 65) is a small bone sliver, probably a point for a two-piece fishhook. One end is pointed and slightly polished and the other end has two notches for lashing.

AR7533.4 is a broken short flat strip of bone with two angular cuts at one end. The other end has been snapped. The underside of the bone has a shallow longitudinal groove cut into it. AR7533.5 is a piece of the shaft of a bone broken at both ends and AR7533.6 is an apparently unused dog canine.

*Discussion*

The artefacts from the N-W area and those from the unprovenanced collections are varied and some are representative of the type of material found in many late pre-European sites. Many of the adzes had been reworked and modified after breaking to form smaller adzes, pounders and other items so that the original styles have been obscured. Numerous greywacke flakes indicate adze manufacture or reworking but few stone cores were found. The few argillite flakes present were carefuly re-used suggesting that the material was valued. The greenstone chisels were small and well used.

There were a number of obsidian flakes but no cores. About 20% of the flakes throughout the site were utilised. The largest concentration of obsidian came from the Terrace B area, mainly in the upper layers of Squares O and P 105, Q and R104 and

Q 105, suggesting that the terrace was once an area of industrial activity for obsidian flaking (Brenda Sewell pers. comm.).

Careful use was being made of residual stone material present on the site with many artefacts being reworked or reused. This could suggest restricted access to sources beyond the local area, possibly during the politically disturbed late eighteenth and early nineteenth century.

The adze of Duff's Type 4B and the bone fishhook tab are the only items suggestive of an archaic or early occupation although there is a variety of adzes that were not typical of the 2B quadrangular type.

Most of the stone material came from local sources i.e. Motutapu or Waiheke Islands, but stone from Coromandel is also well represented.

## FAUNA AND FLORA

### *Dog and other mammal bone*

Numerous dog bones were found in the excavation. These have been analysed as one collection by Ian Smith, Anthropology Department, University of Otago.

Smith comments that the minimum number of dogs present was seven: one pup, two sub-adults, three sub-adults and/or adults and one adult. All parts of the dog carcasses were present suggesting that they were killed and butchered on the site. The most frequently occurring elements were radii, ulnae, tibiae and pelves. All are meat yielding parts of the body. However, there were small numbers of scapulae, humeri and femora and these also yield good meat cuts. Smith (1981:98-99) notes that patterns similar to this have been observed elsewhere. Possible explanations for this could be: loss of bones through breakages; use of humeri and femora for making artefacts; or the sharing of dog carcasses in the manner suggested for Pig Bay (Smith 1981:98-99) with some of the best cuts being eaten or disposed of elsewhere.

The other major items of interest in this collection are the dog mandibles. At least ten complete or partial right or left half mandibles show evidence of either the ventral border or ramus having been cut from the mandible body. The ventral portion is known to have been used for making points for composite fishhooks and it is probable that these represent the residue after the thick bases were cut or broken away.

Other bones identified were a few fragments of sea mammal, probably dolphin, and lamb bone from T 102.

### *Bird, fish and rat bone*

Identification of this material was done by R. McGovern-Wilson of the Anthropology Department, University of Otago. These bones have also been treated as one assemblage although some of the bones are localised to specific layers and squares. Identifications are listed in Tables 1 and 2.

Table 1. Taylor's Hill bird identifications.

| Square | Birds |
|---|---|
| N 104 | pukeko (*Porphyrio melanotus*) |
| O 104 | pukeko; Australasian harrier (*Circus approximans*) |
| O 105 | little blue penguin (*Eudyptula minor*); grey duck (*Anas superciliosa*) |
| Q 104 | Australasian harrier; N.Z. pigeon (*Hemiphaga novaeseelandiae*); little blue penguin |
| T 103/104 | teal (*Anas* sp.); tui (*Prosthemadera novaeseelandiae*) |
| Trench A | Australasian harrier; kaka (*Nestor meridionalis*) |
| Trench C | kaka |

Table 2. Taylor's Hill fish identifications.

| Fishes | minimum number |
|---|---|
| Snapper (*Chrysophrys auratus*) | 37 |
| Trevally (*Caranx lutescens*) | 1 |
| Conger eel (*Conger verrauxi*) | 1 |
| Barracouta (*Thyrsites atun*) | 2 |
| Ray (*Dasyatis* sp.) | 1 |
| School shark | 1 |

### *Shells*

The most common shells mentioned in the field notes were cockles (*Austrovenus stutchburyi*) with some pipi (*Paphies australis*) and scallops (*Pecten novaezelandiae*). All of these can be gathered locally. A small amount of shell from the excavation has survived (Davidson pers. comm.). It represents four "midden samples" consisting entirely of small cockles and seventeen small bags of individual, obviously selected shells. Because of the highly selective nature of this sample no analysis has been carried out.

Another three small bulk samples were analysed in Canberra in 1963 under the direction of W.R. Ambrose, as part of a wider study of shell samples from New Zealand excavations. The results have been converted to percentages and are presented in Table 3.

In the original analysis, numbers and weights were listed for entire shells, broken individuals, and fragments. Minimum numbers have been calculated for each species by combining the numbers of entire and broken individuals and, in the case of bivalves, dividing by two or, in the case of *Pecten novaezelandiae*, where upper and lower valves were distinguished, taking the larger number. The weight in grams for each species combines all recognisable pieces of that species.

Table 3. Percentage composition of shell material in midden samples by number and weight (g).

| Sample number | 65 | | 66 | | 67 | |
|---|---|---|---|---|---|---|
| | n | wt | n | wt | n | wt |
| *Paphies australis* | 2.0 | 2.6 | 0.7 | 0.2 | 3.8 | 3.0 |
| *P. subtriangulata* | 0.4 | 1.4 | 0.2 | x | 0.2 | 0.2 |
| *Austrovenus stutchburyi* | 73.9 | 60.1 | 94.6 | 91.8 | 93.9 | 94.0 |
| *Cyclomactra ovata* | 1.6 | 4.1 | 0.2 | 0.3 | | |
| *Mytilus* sp. | 0.8 | 1.3 | 0.7 | 1.8 | 0.2 | 0.2 |
| *Pecten novaezelandiae* | 8.6 | 20.1 | 1.1 | 5.0 | 0.2 | 2.0 |
| *Ostrea* sp. | 1.2 | 2.9 | 0.2 | x | 0.2 | x |
| *Amphibola crenata* | 4.1 | 1.9 | | | 0.2 | x |
| *Cominella* sp. | 2.8 | 2.2 | 0.4 | 0.3 | 0.4 | 0.3 |
| *Turbo smaragdus* | 3.2 | 2.6 | 0.4 | 0.2 | 0.2 | x |
| *Nucula hartvigiana* | 0.4 | x | 0.2 | x | | |
| *Maoricrypta monoxyla* | | | 0.2 | x | | |
| *Sigapatella novaezelandiae* | | | 0.2 | x | | |
| *Pomatoceros caerulens* | | | 0.2 | x | 0.2 | x |
| Chiton | | | 0.2 | x | 0.2 | x |
| *Zediloma* sp. | 0.4 | 0.1 | | | | |
| *Struthiolaria papulosa* | 0.4 | 0.2 | | | | |
| unidentified gastropod | | | 0.2 | x | | |
| unidentified fragments | | 0.1 | | 0.2 | | x |
| Total number | 245 | | 447 | | 444 | |
| Total weight | | 839.6 | | 990.4 | | 1059.1 |

x = trace only, >0.1%.
Sample 65: Square V 105, pit Layer 4C. Sample 66: Square T 104, top of pit fill. Sample 67: Square O-Q 104, Layer 3.

Sample 65, from what is thought to be an early context, shows a somewhat greater diversity, whereas samples 66 and 67 show a heavier reliance on *Austrovenus stutchburyi*. The samples are two small and two few, however, to read any great significance into their composition.

The Canberra study also involved measurements of complete valves of *Paphies australis* and *Austrovenus stutchburyi*. The resulting size frequency histograms appear to reflect a smaller population of *Austrovenus stutchburyi* in sample 66, compared with the other two samples.

### *Flora*

Wood and charcoal samples from the site were analyused by Rod Wallace and the results shown in Table 4. He suggests that Taylor's Hill was near a broad-leafed forest dominated by puriri whereas a short distance south the Maungarei (Mt Wellington) area showed a more open environment with bracken and regrowth scrub.

coastal sand-dune tiger beetles were related to the colours of the sands in different areas.

In general (see Figs. 2, 3-10), dark specimens similar to those described as *Cicindela campbelli* Broun, 1886, occurred on the black ironsands of the west coast beaches near Auckland and further south. The species accepted as *Cicindela perhispida* Broun, 1880, with reduced thin dark areas on the elytra, was from further north on the west coast cream sands and the subspecies *Neocicindela perhispida giveni* van Nidek, 1965, with dark areas almost completely reduced was on pale sands of the northernmost and eastern beaches of the far north. *Cicindela brevilunata* Horn, 1926, with bold but reduced dark areas, occurred on whitish sands south of the Whangarei Harbour on the east coast. Pinkish-brown sand on the intervening north-eastern coasts did not provide tiger beetles.

Further, because of apparent mis-labelling and/or mis-recording, there had been a confusion of the species names and localities in earlier years in regard to the *perhispida* of Broun (1880) occurring at Hokianga (on the west coast) and Marsden Point (south of Whangarei Harbour on the east coast) and to *brevilunata* of Horn (1926b) also occurring at Hokianga. Both Hudson (1935) and Horn (1936) had continued this confusion. Because neither Broun (1880) nor Horn (1926b) designated type specimens in their papers and because Horn (1936) recorded having a Hokianga specimen taken from Broun's collection in the British Museum there was a distinct possibility that the names of the two species could be exchanged. Consequently it was deemed necessary by the author to consider the taxonomic position of these two species which would require examination of types and other specimens in overseas museums. Subsequently this was done in 1987. Further collecting started in January 1988, during the 1987-88 summer season, has revealed further distributional and seasonal information for the entities concerned. The results of these studies are reported here.

## HISTORICAL RECORDS

### *Biographical notes*

This list starts with Capt. Thomas Broun who studied New Zealand beetles for at least 45 years and published extensively. Two people who follow (Cheeseman and Campbell) are credited by Broun with collecting early specimens he described. The next four persons were later Broun contemporaries who also collected coastal tiger beetles and the last three were later collectors.

Thomas Broun (1838-1919) was a professional soldier when he first arrived in New Zealand. Later he was both an amateur coleopterist and professional entomologist as well as a farmer and a schoolteacher. His first published paper on New Zealand Coleoptera was read before the Auckland Institute in May 1875, and many more followed.

Broun apparently started teaching (at Tairua, east of Auckland) in 1876 (Cheeseman 1920) and he moved to the Whangarei Heads area (on the northern side of Whangarei Hbr.) in 1877 (Broun MS. letters in Auckland Museum library). As the printing of his Manual (Broun 1880) had been authorised in 1877 (Hector 1880), he

NZ 7770 charcoal
Delta 13C: -26.4 +- 0.1%
Conventional radiocarbon age: 396 +- 46 yr BP
Calibrated age range at 95% confidence: AD 1447 to 1635
Calibrated age range at 68% confidence: AD 1456 to 1521 (41%)
AD 1576 to 1626 (28%)

This sample came from a remnant of the early scoria, ash and charcoal layer through which Pit T was dug. The pit had an embrasure in the north wall filled with the ash layer and at the base of this the sample was gathered. The charcoal was identified as predominantly puriri (*Vitex lucens*) twigs, with small amounts of *Coprosma* sp., mapau (*Myrsine australis*), and pate (*Schefflera digitata*), and regarded as extremely suitable for dating (Rod Wallace pers. comm.).

NZ 7753 cockle (*Austrovenus stutchburyi*) shell
Delta 13C: 1.0+- 0.1%
Conventional radiocarbon age: 670 +- 50 yr BP
To compare this date with the dates reported against the New Zealand shell standard the local correction for ocean reservoir effect needs to be deducted. This is 336 years, shifting the date to 334 +- 50 yr BP.
Calibrated age range at 95% confidence: AD 1521 to 1795
Calibrated age range at 68% confidence: AD 1568 to 1695

This sample came from the lowest layer of fill in the large Pit V, just above the floor of the pit in Square V 105.

Although both samples came from the bases of pit fills NZ 7770 appeared to be material which had slumped into Pit T from a layer predating the construction of the pit, whereas NZ 7753 represented the initial filling of the large Pit V after its abandonment. In this interpretation, NZ 7770 probably dates the initial occupation of this part of the site, whereas NZ 7753 represents the closing stage of the occupation which involved construction and use of the very large pit on the platform. This result is almost identical to results for the main occupation of Mount Wellington, which also involved the construction of large pits (Davidson pers. comm.). The dimensions of Pit V are comparable to those of pits uncovered during excavations on Mount Wellington by Golson (1960) and Davidson (pers. comm.).

Initial occupation of the eastern ridge of Taylor's Hill may have begun earlier than, or about the same time as the first occupation of Mount Wellington. A major period of pit construction and use appears to have taken place at about the same time at both sites.

## CONCLUSIONS

Archaeological excavations at Taylor's Hill suggested three periods of occupation:

1. The building of the platform, digging of pits and various other activities;

2. the addition of the northern terraces with steep scarps, one cutting through an earlier midden deposit; and

3. the filling in of the terrace pits and possibly some on the platform and the modification of the outline of the terraces, naturally and/or deliberately.

There could have been periods of abandonment of the site during this sequence but there was no evidence for this.

A surprising number of artefacts were found despite the fact that excavations were peripheral to the main pa. These artefacts have been treated as one assemblage as their stratigraphic position is not always clear.

There is evidence of adze preparation on the site. Most of the adzes are undiagnostic in form but the reworking of a number overshadows their original shape. There are a few Type 2B adzes. Some adzes suggest an earlier style such as the Type 4B from the surface collection and a few broken blades. The curious fishhook tab reflects the archaic period but the material it is made from and its preparation by cutting rather than drilling and grinding makes it an anomaly. No drill points, apart from the hand held one were found.

Many adzes show elements of reworking and re-use. Some stubby adzes are the result of reworking larger broken ones. Later occupants re-used discarded pieces, possibly because of lack of access to sources or trade even at a fairly local level or because the site was only used spasmodically. Excavations at the Fisher Road, Tamaki, living sites (R11/887,888 and 889) also produced a number of reworked adzes (Foster and Sewell 1989:18) so that this re-use was not specific to Taylor's Hill.

The presence of a number of debitage greywacke flakes suggests that at one stage adzes were made or reworked on the site, probably from imported cores although only one core was found. This adze preparation may have occurred during the earlier occupation and the re-use of artefacts later.

Most of the stone came from local sources, i.e. of Hauraki Gulf origin from the Waipapa groups of meta-greywacke, but there are a number of items which originated in Coromandel suggesting contact with people from that area.

Many items were roughly made and for everyday use, for example, tattooing chisels and the bone toggle. There was little apparently made by specialists or for ceremonial occasions. It is possible that the better quality material was elsewhere, such as the main portion of the pa, or else it was removed as people came and went.

Food production and gathering involved kumara gardening, fishing, shellfish collection and bird hunting. Dogs were also important. Timber working and earth digging were represented by stone tools.

The presence of pits for food storage (probably kumara) indicated that gardening was carried out around the site. Later many of the pits were filled in. This could suggest that storage pits were rebuilt in other areas when the early ones were no longer suitable for storage or that the local soil had become exhausted. Although the pits show that some roof supports required shoring up over time, post repairs were not excessive suggesting that the structures were either well built or not used for very long.

Food collection activities indicate that only a few bird species were exploited. Fishing was important and snapper predominate. This species is the most common in a number of Auckland sites. Cockles were the most numerous of the local shell fish gathered. The quantity of dog bone remains suggests that dogs were important both as food and in tool manufacturing.

The radiocarbon dates indicate an occupation period between the 15th and 17th century A.D. for the platform. From these dates and other aspects of the excavation it could be suggested that the first occupation of Taylor's Hill occurred during the period described by Green (1963:99-100) as the "proto-Maori phase" *ca.* 1450-1650 A.D. and that similar activities were also occurring on nearby Maungarei (Mt Wellington) over that time.

The site probably continued to be occupied through the 'Classic Maori' period as much of the material from the site is similar to that described by Davidson (1978:5) as associated with that period. It is probable that the site continued to be used, possibly spasmodically, to the end of the 18th century, after which it was abandoned.

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Caroline Phillips produced the site plan from several sources and pieced together a number of uncompleted field drawings to produce the long section and floor plan, without which the writing of this report would have been difficult. Dr Susan Bulmer, Department of Conservation, supplied a copy of the recent site plan of Taylor's Hill, prepared by David Bulmer.

Ian Smith, University of Otago, prepared a detailed analysis of the dog and other mammal bones in the site and Richard McGovern-Wilson of the same institution analysed the fish bone. Kathy Prickett and Dante Bonica analysed and discussed the stone sources and Brenda Sewell examined the obsidian. Charcoal was identified by Rod Wallace, Anthropology Department, University of Auckland.

Janet Davidson read and commented on the draft report and summarised the Canberra shell study. Professor R.C. Green, Anthropology Department, University of Auckland, allowed use of some of the Taylor's Hill archival photographs. The Carbon 14 dates were obtained with the assistance of the Lottery Science Distribution Committee as part of a wider dating project organised by Janet Davidson. Jack Golson allowed the use of his material to enable this report to be written and commented on the draft. Shell samples were analysed by Wal Ambrose. Nigel Prickett and the Auckland Institute and Museum supported the production in a number of ways.

*Footnote.* Jack Golson would like to add that he was delighted to make available his field notes and excavated materials to allow this report to be written and warmly thanks the author and her colleagues for all their effort.

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